

CLAIMS:

We claim:

1. A light projecting device, comprising:
a light source;
5 a light homogenizer;
wherein the light homogenizer homogenizes the light from the light source into a uniform image.
2. The light projecting device of claim 1, further comprising:
a reflector;
10 wherein the reflector directs light from the light source towards the light homogenizer.
3. The light projecting device of claim 2, wherein the reflector is an elliptical reflector.
4. The light projecting device of claim 1, wherein the light source is a conventional flashlight bulb.
- 15 5. The light projecting device of claim 1, wherein the light source is a light emitting diode.
6. The light projecting device of claim 1, wherein the light source is a laser.
7. The light projecting device of claim 1, wherein the light source is an arc lamp.
8. The light projecting device of claim 1, further comprising:
20 a light modifying component for displaying an image.
9. The light projecting device of claim 8, wherein the light modifying component is a mask.
10. The light projecting device of claim 8, wherein the light modifying component is a film.

11. The light projecting device of claim 1, further comprising:
a flashlight battery as a light power source.

12. The light projecting device of claim 1, wherein the light homogenizer is a light pipe.

13. The light projecting device of claim 12, wherein the light pipe further comprises:
an input face arranged to receive light from the light source; and
an output face for communicating the uniform image.

14. The light projecting device of claim 13, wherein the input face has a smaller area than the output face.

15. The light projecting device of claim 13, wherein the input face and the output face have substantially the same area.

16. The light projecting device of claim 13, further comprising a diffuser.

17. The light projecting device of claim 16, wherein the diffuser is a holographic diffuser.

18. The light projecting device of claim 16, wherein the diffuser is located at the input face of the light pipe.

19. The light projecting device of claim 12, wherein the light pipe is hollow.

20. The light projecting device of claim 12, wherein the light pipe is solid.

21. The light projecting device of claim 20, wherein the solid light pipe is a circular rod of glass.

22. The light projecting device of claim 12, wherein the light pipe is a compound parabolic concentrator.

23. The light projecting device of claim 1, wherein the light homogenizer is a lens array.

24. The light projecting device of claim 23, the lens array further comprising:

lenslets;

wherein light from the light source is reimaged through the lenslets into a more uniform image.

25. The light projecting device of claim 23, further comprising:

- 5 at least two lens arrays, each having lenslets;
 wherein the more uniform image from a first array is reimaged through the lenslets of
 a second lens array into an even more uniform image.

26. A method of projecting a uniform image using a light source, comprising the steps of:

- 10 generating light from a light source;
 homogenizing the light with a light homogenizer;
 focusing the homogenized light onto an object using a lens.

27. The method of projecting a uniform image of claim 26, wherein the light source is an ordinary flashlight bulb.

28. The method of projecting a uniform image of claim 26, further comprising the step of:
 15 powering the light source with an ordinary flashlight battery.

29. The method of projecting a uniform image of claim 26, further comprising the step of:
 shaping the boundaries of the light image exiting the homogenizer.

30. The method of projecting a uniform image of claim 26, further comprising the step of:
 altering the light image exiting the output face to produce an image.

20 31. The method of projecting a uniform image of claim 26, the step of homogenizing,
 further comprising the steps of:

- receiving the light from the light source into a light pipe face;
 homogenizing the light within the light pipe;
 communicating the light out of the light pipe's output face.

25 32. The method of projecting a uniform image of claim 26, the step of homogenizing,
 further comprising the step of:

- reimaging the light from the light source through lenslets of a first lens array.

33. The method of projecting a uniform image of claim 32, the step of reimaging, further comprising the step of:

reimaging the light from the first lens array through the lenslets of a second lens array.